DECISION
AND
FINDING OF NO SIGNIFICANT IMPACT
FOR
MANAGEMENT OF COYOTE, DOG, AND RED FOX PREDATION ON LIVESTOCK IN THE COMMONWEALTH OF VIRGINIA

The U.S. Department of Agriculture, Animal and Plant Health Inspection Service (USDA-APHIS), Wildlife Services (WS) program responds to requests for assistance from individuals, organizations and agencies experiencing damage caused by wildlife. Ordinarily, according to APHIS procedures implementing the National Environmental Policy Act (NEPA), individual wildlife damage management actions may be categorically excluded (7 CFR 372.5(c), 60 Fed. Reg. 6000-6003, 1995). To evaluate and determine if any potentially significant impacts to the human environment from WS' planned and proposed program would occur, an environmental assessment (EA) was prepared. The EA documents the need for coyote, dog, and fox damage management in the Commonwealth of Virginia and assessed potential impacts of various alternatives for responding to damage problems. WS' proposed action is to implement an Integrated Wildlife Damage Management (IWDM) program on all land classes in Virginia. Comments from the public involvement process were reviewed for substantial issues and alternatives which were considered in developing this decision.

The EA analyzes the potential environmental and social effects for resolving coyote, dog, and fox damage related to the protection of livestock, and threats to public health and safety on private and public lands in Virginia. Virginia has an area of 26,090,880 acres; in Fiscal Year (FY) 97, Virginia WS had sixty-eight agreements to conduct coyote, dog, and fox damage management on about 33,786 acres or less than 0.13% of the land area (Management Information System (MIS) 1997). In FY 98, ninety-nine coyote, dog, and red fox damage management projects were conducted on properties covering an area of about 53,217 acres or about 0.21% of the land area of Virginia (MIS 1998). In FY 99, 166 coyote, dog, and fox damage management projects were conducted on approximately 81,382 acres or about 0.31% of the land area of Virginia (MIS 1999).

WS is the Federal program authorized by law to reduce damage caused by wildlife (Animal Damage Control Act of March 2, 1931, as amended (46 Stat. 1486; 7 U.S.C. 426-426c) and the Rural Development, Agriculture, and Related Agencies Appropriations Act of 1988, Public Law 100-102, Dec. 27, 1987. Stat. 1329-1331 (7 U.S.C. 426c). Wildlife damage management is the alleviation of damage or other problems caused by or related to the presence of wildlife, and is recognized as an integral part of wildlife management (The Wildlife Society 1990). WS uses an Integrated Wildlife Damage Management (IWDM) approach, commonly known as Integrated Pest Management (WS Directive 2.105) in which a combination of methods may be used or recommended to reduce damage. WS wildlife damage management is not based on punishing offending animals but as one means of reducing damage and is used as part of the WS Decision Model (Slate et al. 1992, USDA 1997, WS Directive 2.201). The imminent threat of damage or loss of resources is often deemed sufficient for wildlife damage management actions to be initiated (U.S. District Court of Utah 1993). Resource management agencies and individuals have requested WS to conduct coyote, dog, and red fox damage management to protect livestock in Virginia. All Virginia WS wildlife damage management is in compliance with relevant laws, regulations, policies, orders and procedures, including the Endangered Species Act of 1973 and Clean Water Act.

Virginia WS works and consults with the Virginia Department of Game and Inland Fisheries (VDGIF), and the Virginia Department of Agriculture and Consumer Services (VDACS) to reduce wildlife damage. The VDGIF has the responsibility to manage all wildlife in Virginia, including federally listed T&E species and migratory birds, which is a joint responsibility with the US Fish and Wildlife Service (USFWS). Memoranda of Understanding (MOUs) signed between APHIS-WS and the VDGIF and VDACS clearly outline the responsibility, technical expertise, and coordination between agencies. A Multi-agency Team with representatives and consultants from each of the aforementioned agencies convened to assess the impacts of WS coyote, dog, and fox damage

management in Virginia. The VDGIF and VDACS worked with Virginia WS to determine whether the proposed action is in compliance with relevant management plans, laws, regulations, policies, orders, and procedures.

Consistency

Wildlife damage management conducted in Virginia will be consistent with MOUs and policies of APHIS-WS, the VDGIF, VDACS, USFWS, and the EA. The agencies may, at times, restrict damage management that concerns public safety or resource values.

The analyses in the EA demonstrate that Alternative 1: 1) best addresses the issues identified in the EA, 2) provides safeguards for public health and safety, 3) provides WS the best opportunity to reduce damage while providing low impacts on non-target species, 4) balances the economic effects to agricultural, and 5) allows WS to meet its obligations to the VDGIF and other agencies or entities.

Monitoring

The Virginia WS program will annually provide to the VDGIF the WS take of target and non-target animals to help insure the total statewide take (WS and other take) does not impact the viability of red fox populations as determined by the VDGIF. WS take of red fox would likely not exceed 200 in a year; however, this number was chosen for the analysis to demonstrate the low impact to the red fox population in Virginia (Table 1). WS has not impacted the coyote population in Virginia and expects that its coyote take would be minor compared to sport and other depredation take allowed by the VDGIF (Table 2). The VDGIF, as the agency with management responsibility for wildlife in Virginia has classified the coyote as a nuisance species and there are no restrictions on sport harvest and depredation harvest. Furthermore, even though there is no restriction of harvest, the coyote population and harvest increases each year (Wright et al. 1999, Wright and Emerald 1998, 1997, Wright and McFarland 1996, and Wright 1995). This should assure that cumulative impacts on the coyote population are within those desired by the State and would thus have no significant adverse impact on the coyote population. Significant impacts reducing feral dog populations are welcomed by local government, state government, and a majority of the general public; however, WS take of feral dogs to protect livestock is insignificant in comparison to the euthanization of feral dogs by local humane shelters. The number of free ranging pet dogs and hunting dogs impacted by the WS program has been and would continue to be very low (Tables 3 and 4). In addition, the EA will be reviewed each year to ensure that it and the analysis are sufficient.

The largest number of coyotes, dogs, and foxes killed by Virginia WS to resolve damage problems in any year was 284 coyotes, 114 red fox, and 23 dogs in FY 99. However, the public involvement process for this EA resulted in an increased public awareness of Virginia WS damage management assistance. As a result, there is a potential for increased requests for assistance with coyote, dog, and fox damage problems and the potential requirement for the removal of a larger number of these animals. Under the current program, it is unlikely that WS would remove over 500 coyotes, 100 dogs, and 200 foxes for the protection of livestock annually in Virginia; however, these numbers were chosen for the analysis to demonstrate the low impact to the coyote and fox population in Virginia. Furthermore, WS expects its take of coyotes to increase as seen with private take of coyotes; (1,295 coyotes in the 1993-1994 hunting season to 6,277 coyotes in the 1998-1999 season).

Table 1. Red Fox Take in Virginia Including the WS Program for FY 99.

WS Kill FY-99	114
hypothetical WS take	200
Private Take (VDGIF data)	17,315
Total Kill	17,429
WS Kill - % of total kill	0.7%
WS hypothetical kill - % of total kill	1.1%

As stated above, 114 red fox was the most red fox removed by Virginia WS in any previous year. However, after the extensive NEPA process used and under the proposed action, WS will conduct an analysis for removing up to 200 red fox annually in Virginia. A maximum harvest of 200 red fox annually would account for about 1.1% of the total red fox take estimate (Table 1).

WS has not impacted the red fox population in Virginia and expects that its red fox take would be minor compared to sport and other depredation take allowed by the VDGIF. The VDGIF, as the agency with management responsibility for wildlife in Virginia has classified the red fox as a furbearer and there are few restrictions on sport and depredation harvest. Even though there are few restrictions on harvest, the red fox harvest has been approximately stable each year (Wright et al. 1999, Wright and Emerald 1998, 1997, Wright and McFarland 1996, and Wright 1995); however, when combined with hunter effort the red fox *harvest* has decreased since 1993. Furthermore, all data suggests that the red fox population is stable (VDGIF pers. comm.). This should assure that cumulative impacts on the red fox population are within those desired by the State.

Coyotes are considered a non-native nuisance species in Virginia that thrives in suitable habitat throughout the State. WS killed only 528 coyotes for depredation purposes from FY97 through FY99. It is highly unlikely that the WS program would kill more than 500 coyotes in the entire state in any one year under the proposed action. However, WS take of coyotes to protect livestock has potential to increase because of the growing coyote population and if coyote damage continues to expand and effect more livestock farms each year. Private harvest as reported by VDGIF during the 1998-1999 regulated harvest season was estimated at 6,277 coyotes, a 384% increase in coyote harvest from the 1993-1994 season.

Table 2. Coyote Take in Virginia including the WS program in FY99

WS kill FY99	284
Maximum WS Kill in one year (hypothetical)	500
Private Take (1998-1999 VDGIF data, hunters only)	6,277
Total Kill	6,777
WS FY99 kill: % of total	4.3%
Hypothetical WS Kill: % of total take	7.4%

The unique resilience of the coyote, its ability to adapt, and its perseverance under adverse conditions is commonly recognized among biologists and land managers. Despite intensive historical damage management efforts in livestock production areas and despite sport hunting and trapping for fur, coyotes continue to thrive and expand their range, occurring widely across North and Central America (Miller 1995). Connolly and Longhurst (1975) determined that,... *"if 75% of the coyotes are killed each year, the population would be exterminated in slightly over 50 years."* However, the authors go on to explain that their *"model suggests that coyotes, through compensatory reproduction, can withstand an annual population mortality of 70%"* and that coyote populations would regain pre-control densities (through recruitment, reproduction and migration) by the end of the fifth year after control was terminated even though 75% mortality had occurred for 20 years. In addition, other researchers (Windberg and Knowlton 1988) recognized that immigration, (not considered in the Connolly and Longhurst (1975) model) can result in rapid occupancy of vacant territories, which helps to explain why coyotes have thrived in spite of early efforts to exterminate them (Connolly 1978).

WS take of feral and free roaming dogs has stayed approximately the same from FY97 through FY01(Table 4) (average take of 28 dogs/year). Of the 144 dogs captured from FY97 through FY01, 92 feral "wild" dogs were euthanized and 52 were released with minor injuries or no injuries. The M-44 device killed 44 dogs of which only 7 were free roaming pets or work dogs and two were hunting dogs (only one of the two was legally hunting). Most dogs captured by WS are caught in leghold traps and are feral "wild" dogs and are euthanized on site. Dogs captured with identification or dogs captures that appear to be pets or hunting dogs are turned over to animal control or released on site. WS employees and cooperators are very concerned over the non-target capture of

companion animals. Efforts are made to inform neighbors of livestock protection activities that may pose threats to dogs. However, local leash laws are ignored by a vast segment of the public and free roaming pet dogs may be at risk in areas where coyote, dog, and fox depredation control activities are occurring. M-44 devices are pulled from use during the peak hunting seasons from September 1 through January 7 to avoid any risks that may occur to hunting dogs that roam large areas. WS take of dogs is small in comparison to the euthanization of feral dogs, unwanted dogs, and lost pet and hunting dogs. Humane shelters euthanized approximately 67,300 dogs in 1999. WS take of dogs was 0.056% of the total take of dogs statewide (VDACS 1999).

Table 3. Take of dogs by Wildlife Services in fiscal year 1999 (October 1, 1998 through September 30, 1999) and dogs euthanized by local animal control and humane organizations in 1999.

Species	Killed by WS	Released by WS	Euthanized by local government or humane organizations
dogs	23	15	67,300

Table 4. Take and outcome of dogs captured by Wildlife Services from fiscal year 1991 through fiscal year 2001.

Year	total number of dogs captured by method	target or non-target	total killed	total freed
1991	0			
1992	0			
1993	2-leghold	non-targets	1	1
1994	1-neck snare	target	1	0
	9-leghold	1 target:8 non-target	1	8
1995	1-shooting	target	1	0
	7-neck snare	targets	6	1
	5-leghold	non-targets	0	5
1996	1-M44	target	1	0
	5-neck snare	non-targets	0	5
	13-leghold	1 target:12 non-target	4	9
1997	8-M44	non-targets	8	0
	1-shooting	target	1	0
	9-neck snare	3 target: 6 non-target	8	1
	6-leghold	2 target: 4 non-target	2	4
1998	1-LPC	non-targets	1	0
	10-M44	non-targets	10	0
	3-neck snare	non-targets	1	2
	9-leghold	4 targets:5 non-target	4	5

1999	12-M44	3 target: 9 non-target	12	0
	2-shooting	targets	2	0
	10-neck snare	6 target: 4 non-target	6	4
	14-leghold	8 target: 6 non-target	3	11
2000	9-M44	6 target: 3 non-target	9	0
	1-shooting	target	1	0
	14-neck snare	8 target: 6 non-target	8	6
	10-leghold	5 target: 5 non-target	3	7
2001	5-M44	4 target: 1 non-target	5	0
	1-shooting	target	1	0
	6-neck snare	6 target	5	1
	13-leghold	2 target:11non-target	2	11

Public Involvement

Issues related to the proposed action were initially developed by an interdisciplinary team involving the VDGIF and VDACS. The issues were refined and preliminary alternatives identified. Due to interest in the Virginia WS Program the Multi-agency Team concurred that Virginia WS include public involvement in this EA process. An invitation for public comment letter on the pre-decisional EA was sent to 256 individuals or organizations identified as interested in Virginia WS or VDGIF projects. Notice of the proposed action and availability of the EA and invitation for public involvement was placed in three newspapers (Richmond Times-Dispatch, The Roanoke Times, and The Washington Times) with circulation throughout Virginia. There was a 30-day comment period for the public to provide input on the pre-decisional EA. WS received 346 comment letters from the public involvement process and review of the pre-decisional EA. Some of these letters were duplicates that were sent as both letters and as e-mails. All comments were analyzed to identify substantial issues and alternatives. All letters and responses are maintained in the administrative file located at the Virginia WS State Office, P.O. Box 130, Moseley, Virginia 23120.

Major Issues

The EA describes the alternatives considered and evaluated using the identified issues. The following issues were identified as important to the scope of the analysis (40 CFR 1508.25).

- Effects on coyote and red fox populations
- Effects on non-target wildlife populations including threatened and endangered species
- Effects on dogs
- Effects of Human health and safety
- Impacts to stakeholders, including aesthetics

Affected Environment

The areas of the proposed action include private, state, federal, and county lands where coyote, dog, and fox activities could cause damage.

Alternatives That Were Fully Evaluated

The following Alternatives were developed to respond to the issues. Two additional alternatives were considered but not analyzed in detail. A detailed discussion of the effects of the Alternatives on the issues is described in the

EA; below is a summary of the Alternatives.

Alternative 1 - Continue the Current Federal VCCDCP Program /Integrated Wildlife Damage Management (No Action/Proposed Action).

The No Action alternative is a procedural NEPA requirement (40 CFR 1502), is a viable and reasonable alternative that could be selected, and serves as a baseline for comparison with the other alternatives. The No Action alternative, as defined here, is consistent with the Council on Environmental Quality's (CEQ's) definition (CEQ 1981).

The proposed action is to continue the current WS program in Virginia that responds to requests for VCCDCP to protect livestock from coyote, dog, and fox predation. An IWDM approach would be implemented which would allow use of any legal technique or method, used singly or in combination, to meet requestor needs for resolving conflicts with coyotes, dog, or red fox (Appendix B of the EA). Cooperators requesting assistance would be provided with information regarding the use of effective nonlethal and lethal techniques. Lethal methods used by WS would include shooting, calling and shooting, trapping, snaring, dogs, Gas Cartridges, M-44's, and LPCs. Nonlethal methods used by WS may include strobe sirens and placing guard dogs. In many situations, the implementation of nonlethal methods such as guard dogs, llamas, or donkeys, fencing, moving livestock to other pastures, shed lambing, night penning, habitat alteration, herding, and scare devices are best implemented by livestock producers and they would be the responsibility of the requestor to implement. VCCDCP by WS would be allowed in the State, when requested, on private or public lands (e.g., state) where a need has been documented and upon completion of an *Agreement for Control*. All management actions would comply with appropriate federal, state, and local laws.

Alternative 2 - Nonlethal VCCDCP Only By WS.

Under this alternative, only nonlethal direct damage management activities and technical assistance would be provide by WS to resolve coyote, dog, or red fox predation on livestock. Persons receiving nonlethal technical assistance could still resort to lethal methods that were available to them. Lethal control methods which could legally be implemented by the public are shooting, calling and shooting, trapping, snaring, dogs, and Gas Cartridges. M-44's and LPCs are only legally available for use by WS employees. Appendix B of the EA describes a number of nonlethal methods available for use by WS under this alternative.

Alternative 3 - Technical Assistance Only.

This alternative would not allow for WS operational VCCDCP in Virginia. WS would only provide technical assistance and make recommendations when requested. Producers, property owners, state or local government agency personnel, or others could conduct VCCDCP using traps**,** shooting, calling and shooting, snares, Gas Cartridges, or any nonlethal method that is legal. Currently, M-44's and LPCs are only legally available for use by WS employees. Appendix B of the EA describes a number of methods that could be employed by private individuals or other agencies.

Alternative 4 - Lethal VCCDCP Only By WS.

Under this alternative, only lethal direct damage management services and technical assistance would be provided by WS. Technical assistance would include making recommendations to livestock producers to allow them to take coyotes, dogs, and red fox by lethal methods. Requests for information regarding nonlethal management approaches would be referred to VDGIF, VDACS, local animal control agencies, or private businesses or organizations. Individuals or agencies might choose to implement WS lethal

recommendations, implement nonlethal methods or other methods not recommended by WS, contract for WS direct damage management services, use contractual services of private businesses, use volunteer services, or take no action. In some cases, damage management methods employed by others could be contrary to the intended use or in excess of what is necessary. Not all of the methods listed in Appendix B of the EA as potentially available to WS would be legally available to all other agencies or individuals (e.g., M-44's and LPCs).

Alternative 5 - No Federal WS VCCDCP.

This alternative would eliminate federal involvement in VCCDCP in Virginia. WS would not provide direct operational or technical assistance and requesters of WS services would have to conduct their own VCCDCP without WS input. M-44's and LPCs are only legally available for use by WS employees. Therefore, use of these methods by private individuals and state and local government agency personnel would be illegal. Gas Cartridges could be used by private individuals and state and local government agency personnel.

Alternatives Considered but not Analyzed in Detail are the Following:

Compensation for Wildlife Damage Losses. The compensation alternative would direct all Virginia WS program efforts and resources toward the verification of livestock losses from coyotes, red foxes, and dogs, and to providing monetary compensation for these losses. Virginia WS activities would not include any operational damage management or technical assistance.

This option is not currently available to Virginia WS because WS is directed and authorized by law to protect American agricultural and natural resources, property and public health and safety (Animal Damage Control Act of 1931, as amended; and the Rural Development, Agricultural and Related Agencies Appropriation Act of 1988). Analysis of this alternative in USDA (1997) shows that it has many drawbacks:

- Compensation would not be practical for public health and safety problems,
- It would require larger expenditures of money to investigate and validate all losses, and to determine and administer appropriate compensation,
- Timely responses to all requests to assess and confirm losses would be difficult, and many losses could not be verified,
- Compensation would give little incentive to limit losses through other management strategies,
- Not all resources managers/owners would rely completely on a compensation program and unregulated lethal control would probably continue and escalate,
- Neither Congress nor the Commonwealth of Virginia has appropriated funds for a compensation program.

Without the current VCCDCP, projected sheep losses alone could amount to over 11,430 head at $97/head or $1.1 million (see Chapter 2 “2.3.2 Cost effectiveness of coyote damage management”). A compensation program would require funding over the projected $1.1 million loss. The figure of $1.1 million does not include expenditures for administration and investigation for the validation of losses or compensation for losses of cattle, goats, or other livestock.

During FY98 the VCCDCP spent $92,000 to protect livestock from coyote, dog, and fox predation. A cost benefit analysis determined that for every dollar spent, up to $10.35 was saved. However, sheep losses still amounted to over $63,000 with the assistance of the VCCDCP. A more economical approach to a $1.1 million plus compensation program would be to increase VCCDCP funding to properly to meet the demand for services.

Coyote Bounties

Legislation was passed in the 1999 Session of the Virginia General Assembly authorizing counties the option of establishing their own coyote bounty system. To date, Lee, Scott, Tazewell, Buchanon, Giles, Bath, and Warren Counties have established a bounty system on coyotes. After one season of experience with the bounty system, one county has rescinded the bounty and others are considering the same. Payment of funds for killing coyotes (bounties) is not supported by WS because:

- Bounties are not effective in reducing damage.
- Circumstances surrounding take of animals is largely unregulated.
- No process exists to prohibit taking of animals from outside the damage management area for compensation purposes.
- Bounty hunters may mistake dogs and foxes as coyotes.
- Officials responsible for checking in coyotes may mistake dogs and foxes as coyotes.
- Coyote bounties have a long history (>100 years in the U.S.) of use in many states without ever achieving the intended results of reducing damage and population levels (Parker 1995).

In 1999-2000, Virginia counties allocated $22,500 on coyote bounties. If these funds were re-directed to improve the VCCDCP, the cost benefit ratio on sheep alone at $10.35:1 (see Chapter 2 "2.3.2 Cost effectiveness of coyote damage management") could be further improved to reduce livestock depredations. The overwhelming disadvantage of coyote bounties is the mis-direction of funds meant to, but not effectively and economically able to, reduce coyote damage to livestock.

Finding of No Significant Impact

The analysis in the EA indicates that there will not be a significant impact, individually or cumulatively, on the quality of the human environment as a result of this proposed action. I agree with this conclusion and therefore find that an EIS need not be prepared. This determination is based on the following factors:

1. Coyote, dog, and red fox damage management, as conducted by WS in Virginia, is not regional or national in scope.

2. The proposed action would pose minimal risk to public health and safety.

3. There are no unique characteristics such as park lands, prime farm lands, wetlands, wild and scenic areas, or ecologically critical areas that would be significantly affected.

4. The effects on the quality of the human environment are not highly controversial. Although there is some opposition to wildlife damage management, this action is not highly controversial in terms of size, nature, or effect.

5. Based on the analysis documented in the EA and the accompanying administrative file, the effects of the proposed damage management program on the human environment would not be significant. The effects of the proposed activities are not highly uncertain and do not involve unique or unknown risks.

6. The proposed action would not establish a precedent for any future action with significant effects.

7. No significant cumulative effects were identified through this assessment. The number of coyotes, dogs, and red fox taken by WS, when added to the total known other take of each species, falls well within allowable harvest levels

8. The action will not adversely affect districts, sites, highways, structures, or objects listed in or eligible for

listing in the National Register of Historic Places and will not cause loss or destruction of significant scientific, cultural, or historic resources. Wildlife damage management would not disturb soils or any structures and, therefore, would not be considered a "Federal undertaking" as described by the National historic Preservation Act.

9. An informal consultation with the USFWS confirmed that the proposed action would not likely adversely affect any T&E species.

10. The proposed action would be in compliance with all federal, state, and local laws imposed for the protection of the environment.

Decision and Rationale

I have carefully reviewed the EA and the input from the public involvement process. I believe that the issues identified in the EA are best addressed by selecting Alternative 1 (**Continue the Current Federal VCCDCP Program /Integrated Wildlife Damage Management (No Action/Proposed Action Alternative in the EA**) and applying the associated mitigation and monitoring measures discussed in Chapter 3 of the EA. Alternative 1 would provide the greatest effectiveness and selectivity of methods available, the best cost-effectiveness, and has the potential to even further reduce the current low level of risk to the public, pets, and T&E species. WS will continue to use currently authorized wildlife damage management methods in compliance with all the applicable mitigation measures listed in Chapter 3 of the EA. I have also adopted the revised Pre-Decisional EA *"Management of Coyote, Dog, and Red Fox Predation on Livestock in the Commonwealth of Virginia"* with the Decision Appendix A (Supplement) as the final. Most comments identified from public involvement were minor and did not change the analysis.

For additional information regarding this decision, please contact Martin Lowney, APHIS-WS, P. O. Box 130, Moseley, Virginia 23120, telephone (804) 739-7739.

/s/ 05/08/02

Charles S. Brown, Acting Regional Director Date

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APPENDIX A

Response to Comments
to the
Environmental Assessment for

MANAGEMENT OF COYOTE, DOG, AND RED FOX PREDATION ON LIVESTOCK THROUGH AN INTEGRATED WILDLIFE DAMAGE MANAGEMENT PROGRAM IN THE COMMONWEALTH OF VIRGINIA

WS received 346 comment letters from the public involvement process and review of the pre-decisional EA. Some of these letters were duplicates that were sent as both letters and as e-mails. NEPA requires that proper consideration be given to all reasonable points of view, particularly as they may relate to the issues being considered. In this light, it is important to consider and address concerns or criticisms that may arise. Appendix A is a summary of comments, particularly criticisms and concerns, received from review of the pre-decisional EA, with the corresponding WS responses. See Appendix A of the EA for a more complete "Literature Cited" and Chapter 5 for the list of preparers, consultants and reviewers.

Issue 1: Do not want federal tax dollars used to kill wildlife and no federal program is needed.

Program Response: The United States Department of Agriculture (USDA) is authorized and directed by law to protect American agriculture and other resources from damage associated with wildlife. The primary statutory authority for the Wildlife Services (WS) program is the Animal Damage Control Act of March 2, 1931, as amended (7 U.S. C. 426-426c; 46 Stat. 1468) and the Rural Development, Agriculture, and Related Agencies Appropriations Act of 1988 (P.L. 100-202)(see Section 1.8). WS activities are conducted in cooperation with other federal, state and local agencies; and private organizations and individuals. Federal agencies, including the United States Department of Interior, Fish and Wildlife Service (USDI, FWS), recognize the expertise of WS to address wildlife damage issues.

Furthermore, funding of the Virginia Cooperative Coyote Damage Control Program (VCCDCP) comes from three sources including federal, state (Virginia), and private funds. Sheep producers in Virginia organized a system which uses their contributions to fund the VCCDCP every year.

Issue 2: **Use only non-lethal methods or nonlethal methods before lethal methods.**

Program Response: Using nonlethal methods alone is addressed in chapters 3 and 4 of the EA as alternative 2. Also, some people want nonlethal methods only to be used or for nonlethal methods to be used before offending coyotes and red fox are killed. The National Agricultural Statistics Service (NASS) (1999) reported 87% of Virginia sheep producers and 65% of cattle producers used nonlethal methods, yet many of them still had predation problems. The purpose of the VCCDCP is to reduce predation to protect livestock. If producers are already using nonlethal methods, and nonlethal methods are best implemented by producers, then it is illogical for

WS to implement nonlethal methods or withhold lethal management to stop or prevent predation on livestock.

Most livestock producers continuously implement nonlethal methods before involvement of the VCCDCP. Therefore, the proposed action, an integrated wildlife damage management program, generally involves non-lethal methods which are an ongoing preventative measure implemented primarily by the livestock producer. The integrated wildlife damage management strategy encompasses the use of practical and effective methods for preventing or reducing damage. Requiring the use of nonlethal methods prior to the implementation of lethal control may not be reasonable or practical at sites or situations where livestock producers have already implemented non-lethal methods that were ineffective at alleviating predation.

Thus non-lethal methods are generally implemented prior to lethal methods in the proposed alternative.

Issue 3: **Some people (especially some mounted fox hunters) believe the VCCDCP would eradicate red fox and coyote populations or that adverse impacts to these populations would occur as a result of VCCDCP.**

Program Response: These issues are addressed in section 2.2.1 and fully analyzed in 4.1.1.1 of the EA. A common concern among members of the public is whether wildlife damage management actions adversely affect the viability of target species populations. Furthermore, EAs are misconstrued to call for the eradication of a particular species when in fact EAs address a particular management action. The target wildlife species selected for analysis in this EA are the coyote and red fox of which a minimal number of individuals are likely to be killed by WS use of lethal damage management methods under the proposed action in any one year. The proposed action is to continue the current program therefore potential take can be projected each year. In the 12 years of the VCCDCP only 291 red foxes (an average of 24 red fox per year) have been killed. This averages to less than 1 fox per county where VCCDCP work occurs. It is not possible that an average take of so few red foxes would even have a negative localized effect on the red fox population that is available for sport and harvest take. Red fox home ranges are generally 1,235 acres to 4,940 acres (Voigt and Tinline 1980 cited from Voigt 1987). Therefore there are approximately 11,061 to 44,335 breeding red foxes in Virginia based on this population model and knowing Virginia has 27,377,280 acres. This figure does not include non-territorial non-breeding foxes. The VCCDCP works an average of 70,000 acres in a year and not all at any given time. Therefore, the VCCDCP may affect only 28 to 113 breeding red foxes each year. This figure is substantiated by the fact that the VCCDCP takes an average of only 24 red fox each year. Private hunters and trappers in Virginia take 16,000 to 25,000 red fox each year and the red fox population is considered stable (VDGIF pers. commun.). The VCCDCP has no adverse impacts on red fox populations in Virginia.

Table 1. Number of selected animals taken by the WS program of the USDA, APHIS, in Virginia to reduce or eliminate damage to resources in federal FY 1999 (October 1, 1998 through September 30, 1999).

	Animals killed by Wildlife Services	Animals killed by legal hunters in 1998 - 1999 season [1]
coyotes	284	6,277
red fox	114	17,315
gray fox	35	28,461
raccoon	63	96,421

bobcat	6	4,004
opossum	37	n/a
skunk	9	n/a

1. Information provided by VDGIF.

Some mounted foxhunters are concerned about the effects of the VCCDCP on the population of red foxes in Virginia. Red foxes are included in the analysis of this EA for the simple reason to allow WS to assist a livestock farmer should a fox problem arise. The occurrence of this need has been extremely low. Some foxhunters who do not understand NEPA believe the VCCDCP will decimate or plans to eradicate the red fox population. Section 4.1.1.1 of the EA addresses the probability of red fox being targeted by WS.

Red fox populations can incur 70% annual mortality and maintain a stable population (Voigt 1987). Furthermore, it is doubtful excessive harvest (above 70% annual mortality) in one year would have any long-term impact on red fox populations (Voigt 1987). The high fecundity and dispersal potential of red fox enable populations to withstand a high level of mortality (Voigt 1987). In local areas, competitors such as coyotes and gray fox, and diseases such as rabies have a greater impact on red fox populations and are relatively uncontrolled (Voigt 1987). Coyotes have recently (1979 or 1980) colonized western Virginia and are competing with red fox (Parker 1995). As coyotes become more abundant red fox will probably continue to decline in abundance. The raccoon variant of rabies was introduced in the late 1970's to Shenandoah County, Virginia and Hardy County, West Virginia by raccoon hunters wishing to supplement the local raccoon population with raccoons from Florida (Hanlon and Rupprecht 1998, Winkler and Jenkins 1991, Smith et al. 1984, S. R. Jenkins pers. commun.). Red fox have been infected with the raccoon variant of rabies in Virginia and rabies is a fatal disease (Virginia Department of Health 1999, Smith et al. 1984).

Some mounted fox hunters hold false beliefs about the impact snares have on red fox. Most neck snares set for coyote will not capture a red fox because the loop diameter is to large. A red fox is a much smaller animal than a coyote and can generally slip through a coyote snare without being captured. However, WS does capture some red foxes in snares set for coyotes when snare size must be reduced to fit a smaller crawl under in a fence. From FY93-FY01, only 75 red fox were captured using neck snares and 3 of them were freed. In the same time frame, 255 coyotes were captured using neck snares suggesting that the neck snare is 77% more likely to target coyotes than red foxes (MIS unpubl. data).

M-44's do pose risks to non-target red foxes. The VCCDCP mainly responds to requests for management assistance to reduce coyote damage. If coyotes have colonized a local area it is likely that red fox numbers are already reduced substantially because of competition between the two species (Parker 1995). The VCCDCP may likely improve red fox numbers in an extreme local area since methods used primarily target coyotes. Risks to red fox are therefore reduced and benefits to red fox may occur when some coyotes are removed. The VCCDCP has killed only 121 red fox with M-44's since FY96 (an average of 20 red foxes each year in 30 counties). In the same time frame, the VCCDCP has killed 620 coyotes with M-44's, suggesting that the M-44 is 84% more likely to target coyotes than red foxes in Virginia (MIS unpubl. data). The VCCDCP will have no adverse effects on red fox numbers, even on a local basis (VDGIF, pers. commun.)(Allen and Sargeant 1993).

Issue 4: **Killing coyotes causes more reproduction.**

Program Response: Mortality in coyote populations can range from 19%-100%, with 40%-60% mortality most common (USDI 1979). Several studies of coyote survival rates, which include calculations based on the age distribution of coyote populations, show typical annual survival rates of only 45% to 65% for adult coyotes. High

mortality rates have also been shown in four telemetry studies involving 437 coyotes that were older than 5 months of age; 47% of the marked animals were known to have died. Mortality rates of "unexploited" coyote populations were reported to be between 38%-56% (USDI 1979). Thus, most natural coyote populations are not stable (USDI 1979). In studies where reported coyote mortality was investigated, only 14 of 326 recorded mortalities were due to WS' activities (USDI 1979).

Dispersal of "surplus" young coyotes is the main factor that keeps coyote populations distributed throughout their habitat. Such dispersal of subdominant animals removes surplus animals from higher density areas and repopulates areas where artificial reductions have occurred. Three studies (Connolly et al. 1976, Gese and Grothe 1995, Gese 1999) investigated the predatory behavior of coyotes and determined that the more dominant (alpha) animals (adult breeding pairs) were the ones that initiated and killed most of the prey items. Thus, it appears the above concern is unfounded because the removal of local territorial (dominant, breeding adult) coyotes actually removes the individuals that are most likely to kill livestock and generally results in the immigration of subdominant coyotes that are less likely to prey on livestock.

Coyotes in areas of lower population densities may reproduce at an earlier age and have more offspring per litter, however, these same populations generally sustain higher mortality rates. Therefore, the overall population of the area does not change. The number of breeding coyotes does not substantially increase without exploitation and individual coyote territories produce one litter per year independent of the population being exploited or unexploited. Connolly and Longhurst (1975) demonstrated that coyote populations in exploited and unexploited populations do not increase at significantly different rates and that an area will only support a population to its carrying capacity.

Issue 5: **Lethal methods are ineffective in reducing predator populations.**

Program Response: The goal of the WS VCCDCP is to minimize predation damage to livestock producers through the use of any legal nonlethal or lethal methods used sequentially or simultaneously to stop or prevent predation on livestock. It is not the intent of the program to significantly reduce or eradicate the statewide coyote population. In fact, each year the VCCDCP removes less than 300 coyotes total in 30 or fewer counties and on fewer than 150 farms in Virginia. The VCCDCP targets the red fox on a very small scale (an average of less than 24 red fox taken each year). The VCCDCP has no effect on local or statewide red fox populations (VDGIF pers. coomun.). Although temporary local reductions in coyote numbers at specific sites may occur, no statewide population reductions are expected or intended.

Issue **6*:*** **Livestock producers should use guard dogs.**

Program Response: Thirty eight percent of WS/VCCDCP clients use guard dogs already (NASS 1999) and still request lethal predation management assistance from time to time. Educational efforts recommending guard dogs are made several times each year at the six to twenty educational programs presented through cooperative extension efforts. Some Virginia livestock producers owning land semi-isolated from premium coyote habitat find the use of guard dogs to be very effective especially when operating on smaller land parcels. Some livestock producers have tried guard dogs with little to no success and in some cases the guard dogs have become the livestock killers. Two of the VCCDCP wildlife specialists, who also raise sheep, own and successfully use two and three guard dogs respectively. The information collected from these specialists is used in educational efforts. Guard dogs, although likely beneficial in many ways, can sometimes pose other risks and responsibilities that some people are not likely to welcome. Such risks and concerns include: common problems associated with a roaming dog, the aggressiveness of some dogs towards people, injuring and killing dogs from neighboring properties or hunting dogs, and some people just don't like or fear dogs and want nothing to do with owning a dog.

Issue 7: **Proper fencing should be used to prevent livestock predation.**

Program Response: (see Appendix B of the EA) Fifty percent of WS/VCCDCP clients use "predator resistant"

fencing (NASS 1999) to add to their non-lethal management strategies, and WS/VCCDCP does recommend fencing strategies that will reduce predation. However, even the best constructed fence will not keep a determined coyote from negotiating it. Wildlife specialists and livestock producers will attest to the coyotes' ability to jump fences or to dig a crawl under.

Issue 8: **Livestock producers bear the responsibility to protect their livestock.**

Program Response: (see section 2.3.5 of the EA) Although no law or policy requires livestock producers to employ husbandry or other predation prevention practices to protect their livestock, 65% of Virginia cattle and 87% of sheep producers report using nonlethal methods to reduce predation (NASS 1999). Furthermore, the U. S. District Court of Utah (1993) found the imminent threat of damage or loss of resources is often deemed sufficient for wildlife damage management actions to be initiated. On average, sheep producers in Virginia spent $1,115 per year/farm on nonlethal management methods (NASS 1999), and $3.42 per farm (NASS 1999) or $0.06 per breeding sheep annually (NASS 1995) on lethal damage management methods.

Livestock producers in Virginia employ many lethal and nonlethal management methods to reduce predator losses. In 1999, 105 livestock producers reported the use of 16 different nonlethal methods (VA WS unpub. data). Therefore, requests for WS assistance to protect livestock from predation in Virginia in 1999 came from producers who were already using an average of 3.3 nonlethal methods on each operation, but still experienced unacceptable predation. The most frequently used nonlethal methods were: 1) fencing barriers (conventional), 2) husbandry, 3) fencing barriers (permanent electrical), and 4), guarding dogs (VA WS unpub. data) . WS policy is to respond to all requests for assistance within program authority, responsibility, and budget. If improved husbandry or other nonlethal methods would reduce predation on livestock, then WS will recommend these practices.

The United States Department of Agriculture (USDA) is authorized and directed by law to protect American agriculture and other resources from damage associated with wildlife. The primary statutory authority for the Wildlife Services (WS) program is the Animal Damage Control Act of March 2, 1931, as amended (7 U.S. C. 426-426c; 46 Stat. 1468) and the Rural Development, Agriculture, and Related Agencies Appropriations Act of 1988 (P.L. 100-202)(see Section 1.8). WS activities are conducted in cooperation with other federal, state and local agencies; and private organizations and individuals. Federal agencies, including the United States Department of Interior, Fish and Wildlife Service (USDI, FWS), recognize the expertise of WS to address wildlife damage issues.

Issue 9: **Lethal methods are cruel and inhumane.**

Program Response: The issue of humaneness is addressed in the EA in section 2.3.8. The definition of humaneness varies among people and cultures. The basic problem associated with animal traps is a lack of defining *"humaneness"* as it relates to animal cruelty (Proulx and Barrett 1991). Common knowledge about the various animal rights and humane groups is their prejudice towards their definition of animal humaneness which may vary from a livestock producer and consumer's point of view. VCCDCP Wildlife Specialists take every measure to be as humane as possible while still providing an effective and efficient damage control program.

Issue 10: **WS lethal methods are dangerous to children.**

Program Response: Human safety issues are addressed in section 2.2.4 in chapter 2, and analyzed in section 4.1.4 in chapter 4 of the EA. No child has ever been harmed by any VCCDCP lethal method. Reports of aggressive guard dogs and barbed wire fence abrasions have occurred.

Issue 11: **WS lethal methods are dangerous to pets.**

Program Response: Issues of effects on pet and companion dogs are addressed in section 2.2.3 in chapter 2 and analyzed in section 4.1.3 in chapter 4 of the EA.

Issue 12: **WS lethal methods are dangerous to non-target wildlife, including T & E species**.

Program Response: Non-target wildlife and T&E species issues are addressed in section 2.2.2 in chapter 2 and analyzed in section 4.1.2 in chapter 4 of the EA.

Issue 13: **WS should restore ecological balance by leaving predators alone.**

Program Response: The goal of the WS/VCCDCP is to minimize predation damage to livestock producers through use of any or all legal non-lethal and lethal methods used sequentially or simultaneously to stop or prevent predation on livestock. The VCCDCP accomplishes this without any adverse impacts to the coyote or red fox population. The statewide coyote population continues to expand and red fox numbers are stable (VDGIF pers. comm.).

Issue 14: **WS should implement a compensation program.**

Program Response: Compensation programs are considered in section 3.3.1 in chapter 3 of the EA. This option is not currently available to Virginia WS because WS is directed and authorized by law to protect American agricultural and natural resources, property and public health and safety (Animal Damage Control Act of 1931, as amended; and the Rural Development, Agricultural and Related Agencies Appropriation Act of 1988). Analysis of this alternative in USDA (1997) shows that it has many drawbacks:

- Compensation would not be practical for public health and safety problems,
- It would require larger expenditures of money to investigate and validate all losses, and to determine and administer appropriate compensation,
- Timely responses to all requests to assess and confirm losses would be difficult, and many losses could not be verified,
- Compensation would give little incentive to limit losses through other management strategies,
- Not all resources managers/owners would rely completely on a compensation program and unregulated lethal control would probably continue and escalate,
- Neither Congress nor the Commonwealth of Virginia has appropriated funds for a compensation program.

Without the current VCCDCP, projected sheep losses alone could amount to over 11,430 head at $97/head or $1.1 million (see Chapter 2 “2.3.2 Cost effectiveness of coyote damage management”). A compensation program would require funding over the projected $1.1 million. The figure of $1.1 million does not include expenditures for administration and investigation for the validation of losses or compensation for losses of cattle, goats, or other livestock.

During FY98 the VCCDCP spent $92,000 to protect livestock from coyote, dog, and fox predation. A cost benefit analysis determined that for every dollar spent, up to $10.35 was saved. However, sheep losses still amounted to over $63,000 with the assistance of the VCCDCP. A more economical approach to a $1.1 million plus compensation program would be to increase VCCDCP funding to properly to meet the demand for services.

Issue 15: **Concerns with impacts on dogs and hunting dogs.**

Program Response: Effects on dogs is addressed in section 4.1.3 in chapter 4 and in section 2.2.3 in chapter 2 of the EA.

<u>Analysis of Impacts on Hunting Dogs</u>

An analysis of damage management methods (described in detail in Appendix B) identified M-44's and guard dogs as methods which could result in the unintentional death of a hunting dog. WS then conducted a risk analysis for hunting dogs that could be exposed to damage management methods that would result in unintentional death from M-44's (Table 2-2). This analysis considered hunting seasons when hunting dogs are likely afield (Table 2-3).

Guard dogs have been reported killing hunting dogs (deer) which resulted in intense conflicts between some deer-dog hunters and livestock producers. Guard dogs are a method WS may recommended, but the livestock producer is responsible for implementing.

Hunters are required by state law to have written or verbal permission to hunt on private land (VAC§18.2-132, VAC §18.2-134). Dogs for bear and deer hunting can be more than one mile from the hunter and chases can cross multiple properties. Dog hunters should have permission to hunt from private landowners where there dogs are likely to chase game animals. However, Virginia law (VAC§ 18.2-136) allows dog hunters using dogs to cross another person's land without permission to retrieve dogs. Based upon this analysis of the likelihood of hunting dogs to be in a fenced area and greater than one mile from the hunter, only dogs used for hunting bear and deer would likely be at risk. Based on this analysis, SOPs and state policies were developed (see SOP's in Chapter 3).

Use of Dogs for Hunting

Hunting dogs are used in Virginia to pursue fox, raccoon, bobcat, opossum, rabbit, squirrel, doves, quail, grouse, turkey, deer, bear, and waterfowl. There are an estimated 266,585 licensed hunters in Virginia who hunt with or without dogs (Wright et al. 2000). Hunting contributed $1,404,269,000 in total economic output into the Virginia economy during 1991 (Southwick Associates 1994). The types of hunting with dogs are described:

Mounted foxhunting hounds

Mounted foxhunting has a long rich tradition in the Commonwealth of Virginia (Calos 1999, Juersivich 1999, Tolme 2000, Caggiano 2001). Virginia is the "capital" of foxhunting in the United States (Letter from D. Foster to M. Lowney, February 6, 2002). Mounted foxhunting occurs during the day. An average of 22 foxhounds may participate in a hunt and some hunters may use up to 50 foxhounds (Letter from G. Pitsenberger to M. Lowney, February 5, 2002). Hunts generally occur on a scheduled basis from September through March and certain farms are usually hunted once per month during these six months (Letter from G. Pitsenberger to M. Lowney, February 5, 2002; J. Fendley, Master of Foxhounds Association, pers. commun.). There are an estimated 5,000 - 6,000 mounted fox hunters in Virginia (VDGIF, unpub. data).

Most mounted foxhunting occurs in Loudoun, Fauquier, and Warren Counties (D.Foster, pers. comm.). Of these three counties, only Loudoun County has requested and received VCCDCP service on three farms in the 12 years of the VCCDCP. The nature of mounted foxhunting and mounted foxhunters is that written permission to hunt is lawfully obtained from the landowner and thus information of VCCDCP activities is usually passed on to the hunters. In twelve years of conducting the VCCDCP only one foxhound was captured. The accidental capture or take of foxhound is unlikely.

Only one foxhound has been captured by the VCCDCP in a snare. The dog was released unharmed by the hunter (G. Pitsenberger, pers. commun.). Furthermore, the farmer informed the hunter of the whereabouts of the snares. Since this incident occurred, the landowner, the mounted foxhunter, and WS have worked together to prevent future risks to foxhounds.

The likelihood of VCCDCP interfering with mounted foxhunting is extremely low because most mounted foxhunts occurs in counties unserved by VCCDCP. It is possible that VCCDCP could become an

inconvenience to mounted foxhunters at a very localized level. If mounted foxhunters choose to hunt an area in which VCCDCP activities are taking place they may arrange with the landowner and WS to mitigate for a particular hunt if reasonable notice is provided to WS and the landowner. To date, (FY2002), only two mounted foxhunters have requested mitigation with WS.

Mounted foxhunters believe their quarry is doing fine (74%) and feel there are more red fox today than 5 years ago (VDGIF, unpub. data). Ninety-three percent of mounted foxhunters believe that coyote abundance is up and 57% believe the coyote population is increasing (VDGIF, unpub. data).

General foxhunting hounds

Foxhunting is also practiced without the use of mounted hunters and occurs during the night or day. Eighty-three percent of these hunters conduct chases within a fenced foxhound training preserve (VDGIF, unpub. data.). However, sixty percent also participate in free cast hunts during the night and day on private lands (VDGIF, unpub. data). The home range of red fox is approximately 1,235 acres to 4,940 acres (Voigt and Tinline 1980 cited from Voigt 1987)(Samuel and Nelson 1982) and free cast fox hunts may cover this much area. These foxhunters generally hunt 60 times per year and run an average of 19 hounds per hunt (VDGIF, unpub. data). Of the 60 hunts per year over half (an average of 31) occur in fenced training preserves (VDGIF, unpub. data). Unlike bear and deer hunting with hounds, foxhounds stay closer to the hunter and therefore the seasoned fox hunter should have a good idea of where his/her hounds will travel during a hunt (VDGIF pers. comm.). Free cast foxhounds are possibly at risk to VCCDCP activities. Foxhounds run within fenced training preserves are not at risk to VCCDCP activities. The number of free cast fox hunters is unknown.

General foxhunters believe that fox populations are doing fine and that coyote populations are increasing (VDGIF, unpub. data). To date, only one general foxhunter has requested mitigation with WS in 12 years. WS will work with landowners and general foxhunters if requested by both parties to mitigate individual situations.

Raccoon hunting hounds

Raccoon hunting is especially popular in southwest Virginia but raccoon hunting occurs statewide. There are an estimated 10,000 raccoon hunters who hunt with hounds (Wright et al. 2000). Raccoon hunting seasons are long (Table 2-3). Some raccoon hunters use their hounds year round as allowed by state regulation as long as the quarry is fox in June and July (VDGIF pers. comm.). Some coonhounds become lost or abandoned which also increases their risk to VCCDCP activities. Unlike bear and deer hunting with hounds, coonhounds stay closer to the hunter and therefore the seasoned raccoon hunter should have a good idea of where his/her hounds will travel during a hunt (VDGIF pers. comm.). The likelihood of VCCDCP interfering with law abiding raccoon hunting is unlikely. WS will work with landowners and raccoon hunters if requested by both parties to mitigate individual situations. To date, only one raccoon hunter has requested mitigation.

The following is a breakdown of coonhounds captured by VCCDCP:

1 October 1993, one coonhound was snared and released unharmed. The hunter did not have permission to hunt on this property.
2. January 1995, two coonhounds were snared, both were shot by the farmer who had problems with these two dogs.
3. February 1998, one coonhound was snared and released unharmed.
4. May 1999, one coonhound was killed by an M-44. The hunter did not have permission to hunt on this property.
5. September 1999, one coonhound was killed by an M-44, lawfully hunting.

Bear and deer hunting hounds

Bears may be hunted with hounds from December through the first Saturday in January in Virginia. Family and community tradition plays a big part in bear hunting participation (N. Lafont, unpub. data). Bear hounds include curs, plot, airdale, blue tick, walker, and red tick. Pack size may vary from 5 - 8 dogs. Bears are hunted with hounds using three methods: 1) Hunters may be posted along suspected escape routes, by open cast or rig. 2) Open cast is dogs are turned loose in the woods where bears are suspected of occurring and hunters chase the dogs. 3) Rig hunting is starting from the road where bear sign is found by the hunters. The dogs are turned loose where the bear sign is detected and then the hunters follow the dogs. The chase may average 3 miles, but can be as long as 20 miles. Most bear chases are less than 6 miles. There were 17,157 bear hunters in 1999 and 45% hunted bear with dogs (VDGIF 2001). In Virginia most bear hunting occurs on public land on the Blue Ridge Mountains and west of the Blue Ridge Mountains. Hunters may cross private land to retrieve their dogs, but not shoot game animals. Bear populations have increased and broadened their distribution in Virginia in the last 50 years (VDGIF 2001). The bear population numbers approximately 4,000 - 5,000 animals (VDGIF 2001).

Deer may be hunted with hounds east of the Blue Ridge Mountains from late November until the first Saturday in January in Virginia. Deer hounds are broken down into two categories: long-legged and short-legged hounds. Long-legged hounds include walkers, black and tan, and red bone hounds. Short-legged hounds are mainly beagles. Hunters usually hunt with either long-legged or short-legged hounds and seldom mix them. Hunts with long-legged hounds may extend for miles. Hunts with short-legged hounds tend to be significantly shorter. Pack size may vary from 5 to 35 hounds during a hunt. Hunters are posted along suspected escape routes to shoot deer and catch dogs. Hunters are required to have verbal or written permission from the landowner. Hunters may cross private land to retrieve their dogs, but not shoot game animals. Deer occur and are hunted statewide in Virginia. The deer population is stable at approximately 1million animals.

Bear hounds and deer hounds, because of the length of the chase may separate themselves from hunters, are at risk to M-44s. Because of this, formal mitigation measures were taken to avoid M-44 risks to these hounds (see chapter 3). Deer hunting with hounds generally occurs east of the Blue Ridge further reducing any likelihood of VCCDCP interference. In 12 years of the VCCDCP only one bear hound was captured in a snare and released unharmed in 1992. In 12 years of the VCCDCP no deer hounds were captured. However, several deer hounds have been killed and injured by livestock guarding dogs (e.g. Anatolian shepard, Akbash, etc.) in eastern Virginia.

The mitigation measure (no use of the M-44 from September 1 to January 7) was made to reduce the risk primarily to bear and deer hounds, but also to other hunting dogs. This is the most common time of year among all groups of hunters to be afield pursuing the various hunting opportunities that Virginia offers.

Bobcat, squirrel, grouse, and turkey hunting dogs

Bobcats usually are hunted with hounds; squirrels with feists; grouse with pointers, setters, labs, and spaniels; and turkey with setters, pointers, and short-hairs. Pack sizes tend to be single dogs to three or four dogs. Hunting may occur on public or private land. Hunting generally occurs in wooded/forest habitat and therefore the likelihood of any risk from VCCDCP methods to these types of hunting dogs is unlikely (Table 2-2). In 12 years of the VCCDCP, no hunting dog of the above forms of hunting has been captured or killed. Hunters are required to have verbal or written permission from the private landowner.

Opossum, rabbit, dove, quail/pheasant, and waterfowl dogs

Little information exists on opossum hunting in Virginia. Opossum are hunted with hounds; rabbits with beagles, doves, quail and pheasants with labs, pointers, setters and retrievers; and ducks with labs,

Chesapeakes, and retrievers. Pack sizes tend to be single animals to two or three. The VCCDCP has never captured a dog being used in these hunting activities.

Opossum will likely be hunted on a specific property. Chases tend to be short. The VCCDCP has never captured a hound engaged in opossum hunting. Hunters are required to have verbal or written permission from the private landowner.

Rabbit hunting would likely take place on a specific property. Rabbits do not venture far when chased and the average length of chase may be less that 10 square acres. Rabbit hunting generally occurs with use of one to six beagle hounds and several hunters may participate. Rabbit hunting is usually conducted in thick brushy habitat, (i.e.,recently clear cut forests, heavily vegetated fence rows) or early successional forest. The VCCDCP has never captured a beagle hound engaged in rabbit hunting. Hunters are required to have verbal or written permission from the private landowner.

Dove, quail, and pheasant hunting would likely occur on a specific property. Bird dogs are almost always in control by the hunter. The VCCDCP has never captured a bird dog. Hunters are required to have verbal or written permission from the private landowner.

Waterfowl dogs engaged in waterfowl hunting are unlikely to encounter M-44s which are set in fenced pastures. The VCCDCP has never captured a waterfowl dog. Hunters are required to have verbal or written permission from the private landowner.

The mitigation measure to stop using the M-44 from September 1 to January 7 further reduces risks. The likelihood of VCCDCP interfering with law abiding opossum, rabbit, quail/pheasant, dove, and waterfowl hunting is unlikely. WS will work with landowners and the above mentioned hunters if requested by both parties to mitigate individual situations.

Based on the following information, the impact the VCCDCP on the economics and opportunity of hunting with dogs is negligible:

1. The VCCDCP is very small in scale (working an average of 140 properties total each year spread throughout 30 or more counties, e.g. an average of <5 properties/county).
2. The VCCDCP works on an average of only 70,000 acres in a year (0.2% of land in Virginia).
3. The total number of farms/acres served are not serviced all year long or all at any one time.
4. If there is any risk to hunting dogs it occurs outside of most hunting seasons.
5. The VCCDCP will work with hunters and landowners alike to reduce risks on an individual basis.
6. The occurrence of hunting dogs being captured or killed has been low and will continue to be low.
7. The VCCDCP is 12 years old and Virginia hunting opportunity for many game species is at record levels.
8. Houndsmen numbers are down compared to 20 years ago (29,119 coon hunters in 1983; 9,631 coon-hunters in 1999).
9. Fox populations are at or near carrying capacity (VDGIF).

Analysis of Impacts on Pet, Companion, or Work Dogs

Pet or companion dogs are required by county ordinance granted by state law to be under the control of the owner (VAC§3.1-796.93) and cared for by the owner (VAC§3.1-796.68). The VCCDCP mitigates with landowners requesting VCCDCP assistance by requesting landowners notify their neighbors and inform them of the risks associated with livestock protection activities. Regardless of this information, some people fail to restrain pet or companion dogs thereby putting their dogs at risk to VCCDCP activities and

other risks (i.e., vehicle accidents). Some pet or companion dogs also become lost and fall victim to nature (Wasson 1998). Some companion animals may be abandoned, picked up and euthanized by local humane societies (Table 2-1).

Work dogs (herding and guard dogs) are especially at risk on farms where VCCDCP activities are taking place. Therefore, arrangements between WS and the landowners are taken to reduce any likelihood of any accidents.

Analysis of Impacts on Feral, Abandoned, or Liberated Wolf Hybrid Dogs

Feral, abandoned, and liberated dogs or wolf hybrids were excluded from analysis of impacts because they are ownerless, living in a semi-wild or wild state, and without the care of an owner (VAC§3.1-796.68). Furthermore, some of these dogs are killing livestock and the VCCDCP is requested by the livestock producer and local animal control officers to capture these dogs.

Issue 16: **Concerns with impacts to aesthetics.**

Program Response: Aesthetics is addressed in section 2.2.5 in chapter 2 and in section 4.1.5 in chapter 4 of the EA. The public's ability to view wild canids in a particular area would be more limited if the coyotes or red fox are removed. In addition, red fox and coyotes are usually difficult to observe because of the secretive and nocturnal behavior. These animals can live in close proximity to humans and go undetected. Additionally, the opportunity to observe coyotes and fox increases as dispersal in the fall and late winter could possibly replace the animals removed during a damage management action. The opportunity to view or hear wild canids would be available if an individual makes the effort to visit other parks or areas with adequate habitat and local populations of the species of interest.

Issue 17: **Shepards should be used to reduce predation.**

Program Response: The costs and inconveniences associated with putting a shepard or shepards with each flock of sheep in Virginia would be economically impractical and unreasonable to the industry.

Issue 18: **Leghold traps only should be used and no snares**.

Program Response: The main concern expressed here is that snares are not as selective as leghold traps and that dogs captured in snares always die whereas dogs can be freed when captured in leghold traps. While it is true that dogs can be freed, generally unharmed, from leghold traps the same also applies to most dogs captured in snares. From FY91-FY01 only 24 non-target dogs have been captured in neck snares, during the same time frame 255 coyotes were captured in neck snares. Snares set by VCCDCP are 91% selective in capturing coyotes vs. non-target dogs. Furthermore, of the 24 non-target dogs 18 were freed or turned over to animal control. When non-target dogs are captured they are shot if feral, turned over to animal control, or freed on site. Dogs that are leash broke do not usually die from a snare. No non-target hunting dogs have been killed by a snare.

There is also concern among mounted foxhunters that snares are not selective and that non-target red foxes are killed indiscriminately. The VCCDCP does capture some non-target red foxes. However, most neck snares set for coyotes will not capture a red fox. A red fox is much smaller than a coyote and can generally slip through a coyote snare without being captured. However, WS does capture some red foxes in snares set for coyotes when snare size must be reduced to fit a smaller crawl under in a fence. From FY91 - FY01 (11years), only 75 red fox were captured using neck snares and 3 of them were freed. In the same time frame, 255 coyotes were captured using neck snares suggesting that the neck snare is 77% more likely to target coyotes than red fox (MIS unpubl. data).

Issue 19: **Coyotes should be relocated.**

Program Response: Virginia law (VAC§ 29.1-542) prohibits release of coyotes in Virginia. Translocation of wildlife is also discouraged by WS policy (WS Directive 2.501) because of stress to the relocated animal, poor survival rates, and difficulties in adapting to new locations or habitats (Nielsen 1988).

Additionally, the American Veterinary Medical Association, the National Association of State Public Health Veterinarians, and the Council of State and Territorial Epidemiologists opposes relocation of mammals because of the risk of disease transmission (USDA 1997).

Issue 20: **Lethal methods are ineffective in resolving coyote predation problems on livestock**.

Program Response: The VCCDCP started using preventative damage management in 1994 as part of the integrated program. Preventative damage management is the use of lethal methods to remove coyotes on farms with historic livestock predation problems before coyotes begin killing livestock in the current year. Since the implementation of a preventative strategy the predation rate on sheep declined from an average of 16.8 sheep per farm in 1993 to 8.8 sheep per farm in 1995 and down to 2.3 sheep per farm in 2001. This data is provided in Table 1.2 in the EA. This effectively demonstrates that lethal methods and preventative measures are effective in resolving coyote predation on livestock. Furthermore, Wagner and Conover (1999) found that preventative damage management is areas of historic predation on livestock significantly reduced predation to livestock and was cost effective. Conner et. al. (1998) suggested that coyote removal efforts should occur just prior to known peaks of predation.

Issue 21: **Lethal methods (traps, snares, M-44's) indiscriminately take non-target wildlife.**

Program Response: Best Management Practices trap testing has shown the use of traps for capturing furbearers is 92% selective for the target animal (IAFWA 2000). Of all the animals captured, only 1% of the animals were dogs and 3% were cats, primarily feral cats (IAFWA 2000a). No threatened or endangered species were captured or killed during trap testing (IAFWA 2000). All the dogs were inspected by a veterinarian and all were found to be without injury (VDGIF, pers. commun.). The VCCDCP uses traps, snares, and M-44's. Non-target take of wildlife using snares, traps, and M-44s is analyzed in section 4.1.2.

Issue 22: The VCCDCP will adversely affect the horse industry in Virginia.

Program Response: The commentor incorrectly believes that the VCCDCP will adversely affect red fox populations and thus lead to the collapse of the horse industry in Virginia. The VCCDCP will not adversely affect fox populations. This issue was addressed in Section 2.2.1 and 4.1.1 and Issue 3.

Issue 23: What is the scope of the current and future VCCDCP program.

Program Response: The scope of the current VCCDCP is to conduct an integrated program using lethal and non-lethal methods. The implementation of methods by VCCDCP personnel occurs primarily west of Highway 29 due to budgetary limitations. Approximately, 140 farms received direct control assistance annually from the VCCDCP in the last few years. The farms served represent about 35 counties in several regions of Virginia. Of the farms served, approximately, 47 % were in southwest Virginia, 15 % were in the New River Valley, 16 % were in the Alleghany Highlands, 19 % were in Shenandoah Valley, and 3 % were in the northern Piedmont. Future growth of the VCCDCP program will most likely occur were livestock numbers are highest and there is a need due to coyote and/or feral dog predation. It is possible that the VCCDCP would expand direct control services in the southern Piedmont of Virginia if a need existed and funding was provided.

Issue 24: Concern about insufficient education and outreach by Wildlife Services.

Program Response: Wildlife Services frequently works with other agencies such as Virginia Cooperative Extension

Service in education and public information efforts. Each year WS conducts 6 - 20 educational programs throughout Virginia to inform livestock producers and the general public about managing predation on livestock. Additionally, technical papers have been presented at professional meetings and conferences to inform wildlife professionals and the public about recent developments in damage management technology, laws and regulations, and agency policies.

WS provides informational leaflets about coyote, dog, or red fox predation damage management and biology and ecology, and about specific methods (e.g., sources of trapping supplies). In FYs1994-1999, the WS program in Virginia provided 10,812 leaflets to the public about coyote, dog, or fox predation damage management, and methods. Some of the leaflets routinely distributed include *Producers Guide to Preventing Predation of Livestock* (USDA 1994); *Livestock Guarding Dogs: Protecting Sheep from Predators* (Green and Woodruff 1999); *Procedures for Evaluating Predation on Livestock and Wildlife* (Wade and Bowns 1985); *Guard Llamas: a part of Integrated Sheep Protection* (Iowa State University 1994); *Efficacy of Guard Llamas to Reduce Canine Predation on Domestic Sheep* (Meadows and Knowlton 2000); *Protecting Livestock with Guard Donkeys* (Alberta Agriculture, Food, and Rural Development, undated); *Electronic Guard* (USDA 1991); *Source of Trapping and Snaring Supplies* (no citation). These leaflets provide information on minimizing predation through the use of livestock husbandry, fencing, guard animals, repellents and frightening devices, and lethal methods.

Issue 25: Concern about verification of livestock losses.

Program Response: The VCCDCP provides site visits and investigations to determine causes of livestock mortality. WS employees are trained to identify causes of mortality (Wade and Bowns 1985). Predation can be differentiated by feeding on carrion by kill patterns, feeding behavior, and other forensic evidence.

Issue 26: Concern about predation on livestock is a small percent of all causes of mortality.

Program Response: Some respondents are concerned that VCCDCP assistance is not justified because predation losses are a small percentage of overall livestock losses. Livestock producers seek to minimize all causes of mortality (e.g., by using vaccinations, veterinary care, proper nutrition) and the VCCDCP is simply one additional measure to minimize loss. The proportion of each type of loss are not important because livestock producers are seeking to minimize all causes of mortality to the extent possible.

In fact, predation loss can be a substantial cause of mortality for livestock producers. Predation losses on sheep amounts to 38.9% of total loss from all causes of mortality in the United States (NASS 1995).